

**A Comparison of Pharmacy Drug Costs in Canada
and the United States for Selected Years**

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INTRODUCTION

The objective of this study is to assess the impact that compulsory licensing of pharmaceuticals has had on Canadian drug costs at varying intervals in the past 15 years¹. The assessment is based on a comparison of drug store acquisition costs in Canada and the United States for the years 1968, 1976, 1982 and 1983. These years were selected because data for both countries were readily available.²

The methodology used here is similar to a study completed in 1983³ but the results are not comparable. The 1983 study used drug sales to hospitals and drug stores whereas the current study uses data for drug stores only. U.S. hospital data were not available for 1968 and 1976. In addition, the earlier study incorporated data from a survey of manufacturers of generic drugs and similar data are not used in this study.

Over the time period studied (1968-1983) Canadian provincial governments developed a variety of methods to encourage the dispensing of lower cost generic substitutes to beneficiaries of drug reimbursement programs and to otherwise influence program costs. References in this paper to the effects of compulsory licensing are not intended to underestimate the substantial impact that those measures have had on costs. No comparable initiatives were taken in the United States.

1 The compulsory licensing provision for pharmaceuticals was embodied in Section 41(3) of the Canadian Patent Act before 1969 and in Section 41(4) since 1969.

2 Data Source: Drug Store purchases as reported by Intercontinental Medical Services (IMS)

3 DRUG COST DIFFERENTIAL BETWEEN CANADA AND U.S.A., Bureau of Policy Coordination, Consumer and Corporate Affairs Canada, May 1983.

METHODOLOGY

Two sets of drugs were selected for each of the four years studied. One set included drugs subject to generic competition through the compulsory licensing provision⁴ (termed multiple source drugs) and the other included drugs for which there was no generic competition in Canada (termed single source drugs). In selecting drugs for the latter category, an attempt was made to include the largest selling prescription medicines in Canada based on drug store purchases. In a few cases, particular large volume drugs may have been omitted due to factors (such as complex formats or medicines which are mixtures of different drugs) which make accurate comparison difficult.

In the "single source" category, there are drug entities which are marketed by more than one brand name firm. The distinction is based not on the number of producers but on the degree to which firms use price as a means of competing. Brand name companies are generally subsidiaries of large, fully integrated, multinational firms and price competition is a minor part of their marketing strategy. Firms selling generic products, on the other hand, are not usually multinational and not integrated. Most significantly, generic drug companies use price competition as their major marketing strategy. Since this study is concerned with price comparisons, the distinction is drawn between drug makers which compete primarily on the basis of price versus brand name companies which do not.

Differences in costs for drugs were determined in the following way. Where all the dosage forms/strengths⁵ of a particular drug were available in both jurisdictions, the

4 Drugs in this category are known to have generic competition and that at least one manufacturer of a generic substitute received a compulsory licence.

5 Drugs are sold in tablets, capsules, injectables, solutions, ointments, etc. and in various concentration of active ingredients. The term "dosage forms/strengths" refers to the entire array of forms in which a drug is sold.

difference between pharmacy acquisition costs in the U.S. and Canada were multiplied by the quantities sold in Canada and aggregated for each drug. (Canadian sales include sales of the particular drug by both brand name and generic drug manufacturers.) In cases where dosage forms/strengths were not common to both countries, the number of units sold were converted into a common weight (kilograms). Average costs (weighted by sales of dosage forms/strengths) were calculated for each country and the difference multiplied by the Canadian sales. (The results for each drug are provided in Appendices I to IV.

Two comparisons result for each year;

- the aggregate difference for multiple source drugs,
- the aggregate difference for single source drugs.

Aggregated cost differences are measured in dollars and as a proportion of the total sales of each category.

The impact of compulsory licensing is the difference in costs between the U.S. and Canada for multiple source drugs adjusted (reduced) to allow for the difference in single source drugs⁶. This assumes that differences in the cost of multiple source drugs results from competitive pressure and not because of any special characteristics of the drugs in the category. In the absence of compulsory licensing, it is assumed that these drugs would, on average, exhibit the same cost pattern as the sample of single source drugs.

There have been marked fluctuations in the relative values of the Canadian and U.S. dollar during the period considered. The approximate rates that were in effect are as follows:

6 In the actual calculation, the aggregate U.S. cost of multiple source drugs is reduced by the ratio of Canadian to U.S. costs of single source drugs. The difference between this figure and the actual Canadian cost of multiple source drugs is the impact of compulsory licensing.

1968	\$1.08 CAN = \$1.00 U.S.
1976	\$1.00 CAN = \$1.00 U.S.
1982	\$1.20 CAN = \$1.00 U.S.
1983	\$1.30 CAN = \$1.00 U.S.

The dramatic change in rates between 1982 and 1983 would increase the difference between Canada and U.S. cost (after conversion to Canada currency) even if actual selling prices were unchanged. Exchange rates, however, will not affect the measured impact of compulsory licensing. The 1983 data were developed using both the actual 1983 exchange rate and the 1982 rate for comparison.

ANALYSIS

Data for 1968 show that the total cost of 97 single source drugs in Canada was 19 percent lower than the total cost for the same drugs in the United States (See Table A). In that year, four drugs, believed to have been marketed under compulsory licences, cost 43 percent less in Canada than in the U.S. The net difference attributable to compulsory licensing was \$1.5M or 21 percent. Put another way, the quantity of drugs sold under licence by all manufacturers in Canada would have cost \$1.5M more had licensees not been on the market.

In 1976, the difference for single source drugs in percentage terms was consistent with 1968 (15 percent in 1976 versus 19 percent in 1968). For multiple source drugs, the difference increased to 75 percent from 43 percent. The 21 multiple source drugs would have cost over \$21M, or 52 percent more if purchased in the U.S.

By 1976, many provinces had implemented systems to encourage the use of generic products which tended to increase the use of generic substitutes. In addition, changes to the Patent Act in 1969 permitting the importation of active ingredients by licensees, resulted in a major increase in the use of licences. Both of these factors increased the measured cost difference.

In 1982, data for single source drugs was consistent with the earlier years (19 percent difference between U.S. and Canadian costs) but the difference for multiple source drugs increased to 93 percent. The impact of compulsory licensing therefore totalled \$110.2M or 62 percent of the value of the 29 drugs under licence.

TABLE A

DIFFERENCES BETWEEN DRUG COSTS IN
CANADA AND THE UNITED STATESDRUG STORE PURCHASES

	<u>1968</u>	<u>1976</u>	<u>1982</u>	<u>1983</u>
<u>SINGLE SOURCE DRUGS</u>				
Number of Drugs in the Sample	97	83	59	57
Total Cost of Drugs in the Sample	\$32.9M	\$94.4M	\$176.6M	\$253.8M
Difference Between Costs in Canada and U.S.	\$6.1M	\$14.4M	\$33.9M	\$64.1M (a) \$39.7M (b)
Difference as Percent of Total Costs	19%	15%	19%	25% (a) (16%) (b)

MULTIPLE SOURCE DRUGS

Number of Drugs in the Sample	4	21	29	32
Total Cost of Drugs in the Sample	\$7.2M	\$40.8M	\$178.9M	\$200.1M
Difference Between Costs in Canada and U.S.	\$3.1M	\$30.6M	\$165.7M	\$263.9M (a) \$228.2M (b)
Difference as Percent of Total Costs	43%	75%	93%	132% (a) (114%) (b)

IMPACT OF COMPULSORY LICENSING

	\$1.5M	\$21.2M	\$110.2M	\$170.4M
	21%	52%	62%	85%

(a) Exchange rate \$1.30 CAN = \$1.00 U.S.

(b) Exchange rate \$1.20 CAN = \$1.00 U.S.

The major increase between 1976 and 1982 could have resulted from more generic drug firms in the market and more aggressive behaviour by these firms. These firms had many of the largest selling products under licence. In addition, almost every province had implemented or modified existing rules to encourage, if not require, the dispensing of lowest cost interchangeable products.

In 1983, single source drugs were 25 percent below U.S. costs (using actual exchange rates). Multiple source products would have cost 132 percent more in the U.S. than in Canada. The impact of compulsory licensing thus increased to \$170.4M or 85 percent of the value of the 32 licensed drugs. Changes to provincial reimbursement schemes could account for a part of the increase. In addition, in late 1982 and early 1983, several generic manufacturers introduced under compulsory licences competing copies of major selling drugs which caused a rapid decline in prices of these products.

CONCLUSION

For single source drugs, cost differences between the United States and Canada have remained relatively stable over the past 15 years. The difference for drugs in this category has ranged between 15 percent and 25 percent. The figure for 1983 may be overestimated due to the large change in exchange rates between 1982 and 1983.

Drugs for which compulsory licensed competition existed have increased in number from four in 1968 to 32 in 1983. The difference in costs between the two countries for multiple source drugs increased from 43 percent to 132 percent.

The impact of compulsory licensing, estimated in this study by comparing U.S. and Canadian costs, exceeded \$170M in 1983 compared with \$1.5M in 1968. (These figures are for drugstore purchases only and are not adjusted for inflation). In proportion to the sales value of the licensed drugs, the difference in 1968 was 21 percent while in 1983 it amounted to 85 percent of the total value of the drugs under licence.

APPENDIX I

COST DIFFERENCES BY DRUG
1968 DRUG STORE PURCHASES

1968 DRUG STORE PURCHASES

68-1-1

TABLE 1

COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
CHLORDIAZEPOXIDE HCL	1554
CHLORPROMAZINE	289
HYDROCHLOROTHIAZIDE	827
TRIFLUOPERAZINE HCL	450

TOTAL DIFFERENCE	3120	0(2)	3120(3)
TOTAL CANADIAN SALES	7220	0	7220
COST DIFFERENCE AS % OF CANADIAN SALES	43%		43%
NUMBER OF DRUGS	4	0	4

* Drug with generic competition in the US.

1. The Table displays the difference between actual Canadian Sales value and actual U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.
2. Aggregate of cost differences for drugs with generic competition in U.S.A.
3. Aggregate of cost differences for drugs with no generic competition in U.S.A.

1968 DRUG STORE PURCHASES

68-2-1

TABLE 2COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
ACENOCOUMAROL	26
ACETOHEXAMIDE	6
ALLOPURINOL	17
AMITRIPTYLINE HCL	221
AMPICILLIN TRIHYDRATE	285
BENDROFLUMETHIAZIDE/RAUWOLFIA SERPENTINA/KCL	153
BENZTROPINE MESYLATE	-2
BETAMETHASONE 17 VALERATE	64
BISACODYL	28
CHLORDANTOIN/BENZALKONIUM CHLORIDE	6
CHLORDIAZEPOXIDE HCL/CLIDINIUM BROMIDE	226
CHLOROTHIAZIDE	109
CHLORPHENTERMINE HCL	19
CHLORTHALIDONE	292
CHLORTHALIDONE/RESERPINE	31
CLOFIBRATE	20
CLOXACILLIN SODIUM	-64
CYPROHEPTADINE HCL	54

1968 DRUG STORE PURCHASES

68-2-2

TABLE 2 (CONTINUED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
DEMETHYLCHLORTETRACYCLINE	83
DESIPRAMINE HCL	19
DEXTROAMPHETAMINE SULFATE/ PROCHLORPERAZINE BIMALEATE	118
DIAZEPAM	1300
DICLOXACILLIN SODIUM	14
DIETHYLPROPION HCL	35
DIPHENOXYLATE HCL	23
DIPYRIDAMOLE	26
ERYTHROMYCIN ESTOLATE	-4
ETHCHLORVYNOL	96
ETHOSUXIMIDE	10
FLUOCINOLONE ACETONIDE	-31
FLUPHENAZINE HCL	-112
FLURANDRENOLIDE	46
FUROSEMIDE	-17
GLUTETHIMIDE	23
GUANETHIDINE SULFATE	160
GUANETHIDINE SULFATE/ HYDROCHLOROTHIAZIDE	226

1968 DRUG STORE PURCHASES

68-2-3

TABLE 2 (CONTINUED)COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
HYDRALAZINE HCL*	-12
HYDROCHLOROTHIAZIDE/MEPROBAMATE	17
HYDROCHLOROTHIAZIDE/RESERPINE	257
HYDROFLUMETHIAZIDE/RESERPINE/ PROTOVERATRINE	20
HYDROXIZINE HCL	7
INDOMETHACIN	124
IRON/VITAMIN B12/INTRINSEC FACTOR CONCENTRATE	-27
ISOPROPAMIDE IODIDE/ PROCHLORPERAZINE BIMALEATE	7
ISOPROTERENOL HCL*	44
ISOPROTERENOL SULFATE	99
ISOSORBIDE DINITRATE	38
ISOXSUPRINE HCL	37
LINCOMYCIN HCL	-183
LIOETHYRONINE SODIUM	-2
METHYLOTHIAZIDE	66
METHYLDOPA	23
METHYLDOPA/HYDROCHLOROTHIAZIDE	62
METHYLPHENIDATE HCL	65

1968 DRUG STORE PURCHASES

68-2-4

TABLE 2 (CONTINUED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
METHYLPREDNISOLONE	35
METHYPRILON	76
METRONIDAZOLE	115
NORTRIPTYLINE HCL	21
NYLIDRIN HCL	-16
NYSTATIN	58
ORPHENADRINE CITRATE	17
ORPHENADRINE HCL	-1
OXAZEPAM	22
OXYPHENBUTAZONE	28
PENICILLIN V	8
PENECILLIN V BENZATHINE	-37
PERPHENAZINE	42
PERPHENAZINE/AMITRIPTYLINE HCL	383
PHENFORMIN HCL	27
PHENTERMINE RESIN	-17
POLYTHIAZIDE	5
PROCAINAMIDE HCL*	-12
PROCHLORPERAZINE	42

1968 DRUG STORE PURCHASES

68-2-5

TABLE 2 (CONTINUED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
PROPRANOLOL HCL	-2
PROTRIPTYLINE HCL	27
QUINETHAZONE	8
RESERPINE/HYDRALAZINE	-20
RESERPINE/HYDRALAZINE HCL/ HYDROCHLOROTHIAZIDE	38
SODIUM DEXTROTHYROXINE	32
SODIUM LEVOTHYROXINE*	54
SPIRONOLACTONE	106
SPIRONOLACTONE/HYDROCHLOROTHIAZIDE	187
SULFADIMETHOXINE	-9
SULFANILAMIDE/AMINACRINE/ ALLANTOIN	56
SULFINPYRAZONE	-17
THIORIDAZINE HCL	322
THYROGLOBULIN	4
TOLNAFTATE	98
TRANLYCYPROMINE SULFATE	119
TRIAMCINOLONE ACETONIDE	-44
TRIAMCINOLONE ACETONIDE/ NEOMYCIN SULFATE/GRAMICIDIN D/ NYSTATIN	-14

1968 DRUG STORE PURCHASES

68-2-6

TABLE 2 (CONCLUDED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
TRIAMTERENE	18
TRIAMTERENE/HYDROCHLOROTHIAZIDE	83
TRIHENXYPHENIDYL HCL	-17
TRIMEPRAZINE TARTRATE	159
WARFARIN SODIUM	68
XYLOMETAZOLINE HCL	173

TOTAL DIFFERENCE	6147	74(2)	6073(3)
TOTAL CANADIAN SALES	32870	1040	31830
COST DIFFERENCE AS % OF CANADIAN SALES	19%	7%	19%
NUMBER OF DRUGS	97	4	93

* Drug with generic competition in the US.

1. The Table displays the difference between actual Canadian Sales value and actual U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.
2. Aggregate of cost differences for drugs with generic competition in U.S.A.
3. Aggregate of cost differences for drugs with no generic competition in U.S.A.

APPENDIX II

**COST DIFFERENCES BY DRUG
1976 DRUG STORE PURCHASES**

1976 DRUG STORE PURCHASES

76-1-1

TABLE 1**COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
AMITRIPTYLINE HCL	2590
AMPICILLIN TRIHYDRATE*	1028
BISACODYL	245
CHLORDIAZEPOXIDE HCL*	3522
CHLORTHALIDONE	1344
CLOFIBRATE	-148
CLOXACILLIN SODIUM	1311
DIAZEPAM	13083
ERYTHROMYCIN ESTOLATE	1409
FUROSEMIDE	648
IMIPRAMINE HCL*	1259
METHYLDOPA	528
METHYLPHENIDATE HCL	254
METRONIDAZOLE	891
NYLIDRIN*	0
PERPHENAZINE	126
PERPHENAZINE/AMITRIPTYLINE HCL	1843
PRIMIDONE*	142
THIORIDAZINE HCL	1152

1976 DRUG STORE PURCHASES

76-1-2

TABLE 1 (CONCLUDED)

COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
TRIAMCINOLONE ACETONIDE	-450
TRIFLUOPERAZINE HCL	-184

TOTAL DIFFERENCE	30593	5951(2)	24642(3)
TOTAL CANADIAN SALES	40843	7858	32985
COST DIFFERENCE AS % OF CANADIAN SALES	75%	76%	75%
NUMBER OF DRUGS	21	5	16

* Drug with generic competition in the US.

1. The Table displays the difference between actual Canadian Sales value and actual U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.
2. Aggregate of cost differences for drugs with generic competition in U.S.A.
3. Aggregate of cost differences for drugs with no generic competition in U.S.A.

1976 DRUG STORE PURCHASES

76-2-1

TABLE 2COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
ALLOPURINOL	-748
AMANTADINE HCL	27
AMOXICILLIN	769
AZATHIOPRINE	39
BECLOMETHASONE DIPROPIONATE	-437
BENDROFLUMETHIAZIDE/RAUWOLFIA SERPENTINA/KCL	294
BENZTROPINE MESYLATE	30
BETAMETHASONE DIPROPIONATE	-12
BETAMETHASONE VALERATE	4525
CARBIDOPA/LEVODOPA	-200
CEPHALEXIN MONOHYDRATE	267
CEPHRADINE	110
CHLORDIAZEPOXIDE HCL/CLIDINIUM BROMIDE	598
CHOLESTYRAMINE RESIN	328
CLINDAMYCIN	99
CLOMIPHENE CITRATE	98
CLONIDINE HCL	8
CLONIDINE HCL/CHLORTHALIDONE	-3

1976 DRUG STORE PURCHASES

76-2-2

TABLE 2 (CONTINUED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
CLORAZEPATE DIPOTASSIUM	158
CLOTRIMAZOLE	-46
CYCLANDRELATE*	47
CYPROHEPTADINE HCL	295
DANTROLENE SODIUM	-35
DESIPRAMINE HCL	19
DICLOXACILLIN SODIUM	109
DIPHENOXYLATE HCL	354
DIPYRIDAMOLE	177
DOXEPIN HCL	348
DOXYCYCLINE	263
ETHCHLORVYNOL	5
FENOPROFEN CALCIUM	-53
FLUMETHASONE PIVALATE	-17
FLUOCINOLONE ACETONIDE	-450
FLUOCINONIDE	29
FLURAZEPAM HCL	326
GUANETHIDINE SULFATE/ HYDROCHLOROTHIAZIDE	79
HALCINONIDE	-16

1976 DRUG STORE PURCHASES

76-2-3

TABLE 2 (CONTINUED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
HYDRALAZINE HCL*	159
HYDROXYZINE HCL	372
IBUPROFEN	234
INDOMETHACIN	360
ISOPROTERENOL HCL	55
ISOPROTERENOL SULFATE	6
ISOSORBIDE DINITRATE*	620
ISOXSUPRINE HCL*	105
LINCOMYCIN HCL	-10
LIOTHYRONINE SODIUM*	-2
MAZINDOL	-224
MECLIZINE HCL	12
MECLIZINE HCL/NICOTINIC ACID	-58
METAPROTERENOL SULFATE	0
METHYLDOPA/HYDROCHLOROTHIAZIDE	174
METHYLDOPA/CHLOROTHIAZIDE	30
METHYPRYLONE	307
METOLAZONE	-8
MICONAZOLE NITRATE	-98

1976 DRUG STORE PURCHASES

76-2-4

TABLE 2 (CONTINUED)

COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
MINOCYCLINE HCL	-82
NAPROXEN	415
NORTRIPTYLINE HCL	38
OXAZEPAM	347
OXTRIPHYLLINE	144
OXYPHENBUTAZONE	425
PHENFORMIN HCL	12
PHENTERMINE RESIN	-240
PROCAINAMIDE HCL*	-275
PROCHLORPERAZINE	77
PROPRANOLOL HCL	-1125
PROTROPTYLINE HCL	26
RESERPINE/HYDRALAZINE/ HYDROCHOROTHIAZIDE*	-41
SODIUM DEXTROTHYROXINE	5
SODIUM LEVOTHYROXINE	446
SPIRONOLACTONE	849
SPIRONOLACTONE/ HYDROCHLOROTHIAZIDE	1189
SULFANILAMIDE/AMINACRINE/ALLANTOIN	140
SULFINPYRAZONE	431

1976 DRUG STORE PURCHASES

76-2-5

TABLE 2 (CONCLUDED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
TOLMETIN SODIUM	-17
TOLNAFTATE	-111
TRANLYCYPROMINE SULFATE	-54
TRIAMCINOLONE ACETONIDE /NEOMYCIN SULFATE /GRAMICIDIN D /NYSTATIN	35
TRIAMTERENE	48
TRIAMTERENE/HYDROCHLOROTHIAZIDE	563
TRIMETHOPRIM/SULFAMETHOXAZOLE	1679
WARFARIN SODIUM	29

TOTAL DIFFERENCE	14371	613(2)	13758(3)
TOTAL CANADIAN SALES	94395	4794	89601
COST DIFFERENCE AS % OF CANADIAN SALES	15%	13%	15%
NUMBER OF DRUGS	83	7	76

* Drug with generic competition in the US.

1. The Table displays the difference between actual Canadian Sales value and actual U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.
2. Aggregate of cost differences for drugs with generic competition in U.S.A.
3. Aggregate of cost differences for drugs with no generic competition in U.S.A.

APPENDIX III

COST DIFFERENCES BY DRUG
1982 DRUG STORE PURCHASES

1982 DRUG STORE PURCHASES

82-1-1

TABLE 1COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA (1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
ALLOPURINOL*	2280
AMITRIPTYLINE HCL*	4533
AMOXICILLIN	188
AMPICILLIN TRIHYDRATE*	-495
BETAMETHASONE VALERATE	18000
CEPHALEXIN	5806
CHLORTHALIDONE*	3535
CIMETIDINE (BASE)	18600
CLOFIBRATE	1018
CLOXACILLIN SODIUM*	8326
DIAZEPAM	24929
ERYTHROMYCIN ESTOLATE*	1735
ETHAMBUTOL HCL	94
FLUOCINOLONE ACETONIDE*	575
FLURAZEPAM HCL	5116
FUROSEMIDE*	5000
HYDROCHLOROTHIAZIDE*	2900
INDOMETHACIN	5000
METHYLDOPA	7600
METHYLDOPA/HYDROCHLOROTHIAZIDE	1400

1982 DRUG STORE PURCHASES

82-1-2

TABLE 1 (CONCLUDED)**COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
NAPROXEN	5600
OXAZEPAM	10300
PERPHENAZINE	1800
PROPRANOLOL HCL	15470
RIFAMPIN	116
THIORIDAZINE HCL	3000
TRIAMCINOLONE ACETONIDE*	-400
TRIAMTERENE/HYDROCHLOROTHIAZIDE	8900
TRIMETHOPRIM/SULFAMETHOXAZOLE*	4800

TOTAL DIFFERENCE	165726	32789(2)	132937(3)
TOTAL CANADIAN SALES	178927	28092	150835
COST DIFFERENCE AS % OF CANADIAN SALES	93%	117%	88%
NUMBER OF DRUGS	29	11	18
* Drug with generic competition in the US.			

1. The Table displays the difference between actual Canadian Sales value and actual U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.
2. Aggregate of cost differences for drugs with generic competition in U.S.A.
3. Aggregate of cost differences for drugs with no generic competition in U.S.A.

1982 DRUG STORE PURCHASES

82-2-1

TABLE 2COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
ALPRAZOLAM	74
AMANTADINE HCL	82
AMILORIDE HCL/HYDROCHLOROTHIAZIDE	269
AMOXAPINE	135
BACLOFEN	-80
BROMOCRIPTINE MESYLATE	336
CAPTOPRIL	23
CEFACLOR	410
CEFADROXIL	170
CEPHRADINE	124
CHLORTHALIDONE/ CLONIDINE HCL	12
CHOLESTYRAMIN RESIN	350
CLONAZEPAM	43
CLONIDINE HCL	380
CLOTRIMAZOLE	-475
CYCLOBENZAPRINE HCL	125
DANAZOL	454
DANTROLENE SODIUM	0

1982 DRUG STORE PURCHASES

82-2-2

TABLE 2 (CONTINUED)COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
DIPHENOXYLATE HCL*	243
DISOPYRAMIDE PHOSPHATE	440
DOXEPIN HCL	270
DOXYCYCLINE HCL*	1131
DOXYLAMINE SUCCINATE/PYRIDOXINE HCL*	-140
FENOPROFEN CALCIUM	330
FLUOCINONIDE	400
HYDRALAZINE HCL*	20
ISOXSUPRINE HCL*	325
LEVODOPA/CARBIDOPA	100
LOPERAMIDE HCL	-80
LORAZEPAM	8200
MAPROTILINE HCL	410
MAZINDOL	-250
METAPROTERENOL SO ₄	-294
METHYLDOPA/ CHLOROTHIAZIDE	214
METHYPRYLONE	1027
METOLAZONE	116

1982 DRUG STORE PURCHASES

82-2-3

TABLE 2 (CONTINUED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
METOPROLOL TARTRATE	3870
MINOCYCLINE HCL	958
MINOXIDIL	16
NADOLOL	979
NIFEDIPINE	-2066
OXYBUTYNIN CL	-30
PINDOLOL	-1300
PIROXICAM	9580
PRAZOSIN HCL	500
PROPRANOLOL HCL/ HYDROCHLOROTHIAZIDE	46
SALBUTAMOL	4300
SUCRALFATE	140
SULFANILAMIDE/AMINACRINE/ ALLANTOIN	107
SULINDAC	1400
TAMOXIFEN CITRATE	-600
TEMAZEPAM	125
TERBUTALINE SULFATE	140

1982 DRUG STORE PURCHASES

82-2-4

TABLE 2 (CONCLUDED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
TIMOLOL MALEATE	-20
TIMOLOL MALEATE/ HYDROCHLOROTHIAZIDE	11
TOLMETIN SODIUM	260
VALPROIC ACID	-20
VERAPAMIL HCL	-420
ZOMEPIRAC SODIUM	1075

TOTAL DIFFERENCE	33945	1579(2)	32366(3)
TOTAL CANADIAN SALES	176595	10175	166420
COST DIFFERENCE AS % OF CANADIAN SALES	19%	16%	19%
NUMBER OF DRUGS	59	5	54

* Drug with generic competition in the U.S.

1. The Table displays the difference between actual Canadian sales value and actual U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.
2. Aggregate of cost differences for drugs with generic competition in U.S.A.
3. Aggregate of cost differences for drugs with no generic competition in U.S.A.

APPENDIX IV - A

COST DIFFERENCES BY DRUG
1983 DRUG STORE PURCHASES

(Exchange rate: \$1.20 CAN = \$1.00 U.S.)

1983 DRUG STORE PURCHASES

83-1-1

If Exchange Rate is
\$1 US = \$1.2 Can.

TABLE 1COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
ALLOPURINOL*	2949
AMITRIPTYLINE HCL*	2437
AMOXICILLIN*	-55
AMPICILLIN TRIHYDRATE*	-552
BETAMETHASONE VALERATE*	18004
CEPHALEXIN	7909
CHLORTHALIDONE*	3521
CIMETIDINE (BASE)	40265
CLOFIBRATE	1660
CLOXACILLIN SODIUM*	9560
DIAZEPAM	30704
ERYTHROMYCIN ESTOLATE*	2315
ETHAMBUTOL HCL	66
FLUOCINOLONE ACETONIDE*	611
FLUOCINONIDE	369
FLURAZEPAM HCL	6280
FUROSEMIDE*	6438
HYDROCHLOROTHIAZIDE*	417
IBUPROFEN	2297

1983 DRUG STORE PURCHASES

83-1-2

If Exchange Rate is
\$1 US = \$1.2 Can.

TABLE 1 (CONTINUED)**COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
INDOMETHACIN	5983
METHYLDOPA	9974
METHYLDOPA/HYDROCHLOROTHIAZIDE	1792
NAPROXEN	13577
OXAZEPAM	14432
PERPHENAZINE	2556
PROPRANOLOL HCL	19765
RIFAMPIN	55
THIORIDAZINE HCL*	3521
TRIAMCINOLONE ACETONIDE*	-350
TRIAMCINOLONE ACETONIDE /NEOMYCIN SULFATE /GRAMICIDIN D /NYSTATIN*	419

1983 DRUG STORE PURCHASES

83-1-3

If Exchange Rate is
\$1 US = \$1.2 Can.

TABLE 1 (CONCLUDED)**COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
TRIAMTERENE/HYDROCHLOROTHIAZIDE	14226
TRIMETHOPRIM/SULFAMETHOXAZOLE*	7098

TOTAL DIFFERENCE	228244	56333(2)	171911(3)
TOTAL CANADIAN SALES	200099	55564	144535
COST DIFFERENCE AS % OF CANADIAN SALES	114%	101%	119%
NUMBER OF DRUGS	32	15	17

* Drug with generic competition in the US.

-
1. The Table displays the difference between actual Canadian Sales value and actual U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.
 2. Aggregate of cost differences for drugs with generic competition in U.S.A.
 3. Aggregate of cost differences for drugs with no generic competition in U.S.A.

1983 DRUG STORE PURCHASES

83-2-1

If Exchange Rate is
\$1 US = \$1.2 Can.

TABLE 2COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
ACYCLOVIR	-192
ALPRAZOLAM	483
AMILORIDE HCL/HYDROCHLOROTHIAZIDE	540
AMOXAPINE	334
BACLOFEN	-159
BROMOCRIPTINE MESYLATE	363
CAPTOPRIL	-353
CEFACLOR	712
CHOLESTYRAMIN RESIN	405
CLONAZEPAM	60
CLONIDINE HCL	523
CLOTRIMAZOLE	162
CYCLOBENZAPRINE HCL	212
DANAZOL	266
DANTROLENE SODIUM	23
DIFLUSINAL	225
DILTIAZEM HCL	-114
DIPHENOXYLATE HCL*	-10
DOXEPIN HCL	-325

1983 DRUG STORE PURCHASES

83-2-2

If Exchange Rate is
\$1 US = \$1.2 Can.

TABLE 2 (CONTINUED)COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
DOXYLAMINE SUCCINATE/PYRIDOXINE HCL*	440
ETIDRONATE DISODIUM	-91
FENOPROFEN CALCIUM	406
HYDRALAZINE HCL*	-683
ISOTRETINOINE	-533
ISOXSUPRINE HCL*	-282
LEVODOPA/CARBIDOPA	-289
LOPERAMIDE HCL	-335
LORAZEPAM	12783
MAPROTILINE HCL	199
MAZINDOL	-304
METHYPRYLONE	1132
METOCLOPRAMIDE HCL	3166
METOLAZONE	157
METOPROLOL TARTRATE	4443
MINOCYCLINE HCL	2210
MINOXIDIL	57
NADOLOL	1415
NIFEDIPINE	-4117

1983 DRUG STORE PURCHASES

83-2-3

If Exchange Rate is
\$1 US = \$1.2 Can.

TABLE 2 (CONTINUED)COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
OXYBUTYNIN CL	-54
PINDOLOL	-1603
PIROXICAM	6759
PRAZOSIN HCL	753
RANITIDINE HCL	349
SALBUTAMOL	4641
SUCRALFATE	290
SULINDAC	1554
TAMOXIFEN CITRATE	-1117
TEMAZEPAM	263
TERBUTALINE SULFATE	163
TIMOLOL MALEATE	400
TIMOLOL MALEATE/ HYDROCHLOROTHIAZIDE	-8
TOLMETIN SODIUM	496
TRAZODONE HCL	-100
TRIAZOLAM	5032
VALPROIC ACID	-109

1983 DRUG STORE PURCHASES

83-2-4

If Exchange Rate is
\$1 US = \$1.2 Can.

TABLE 2 (CONCLUDED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
VERAPAMIL HCL	-1285
ZOMEPIRAC SODIUM	314

TOTAL DIFFERENCE	39668	-535(2)	40203(3)
TOTAL CANADIAN SALES	253843	9558	244285
COST DIFFERENCE AS % OF CANADIAN SALES	16%	-6%	16%
NUMBER OF DRUGS	57	4	53

* Drug with generic competition in the U.S.

-
1. The Table displays the difference between actual Canadian sales value and actual U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.
 2. Aggregate of cost differences for drugs with generic competition in U.S.A.
 3. Aggregate of cost differences for drugs with no generic competition in U.S.A.

APPENDIX IV - B

COST DIFFERENCES BY DRUG
1983 DRUG STORE PURCHASES

(Exchange rate: \$1.30 CAN = \$1.00 U.S.)

1983 DRUG STORE PURCHASES

83-1-1

If Exchange Rate is
\$1 US = \$1.3 Can.

TABLE 1COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
ALLOPURINOL*	3500
AMITRIPTYLINE HCL*	2837
AMOXICILLIN*	995
AMPICILLIN TRIHYDRATE*	-281
BETAMETHASONE VALERATE*	19960
CEPHALEXIN	9045
CHLORTHALIDONE*	3921
CIMETIDINE (BASE)	46025
CLOFIBRATE	1923
CLOXACILLIN SODIUM*	10571
DIAZEPAM	33572
ERYTHROMYCIN ESTOLATE*	2720
ETHAMBUTOL HCL	76
FLUOCINOLONE ACETONIDE*	792
FLUOCINONIDE	658
FLURAZEPAM HCL	7097
FUROSEMIDE*	7195
HYDROCHLOROTHIAZIDE*	683
IBUPROFEN	3845

1983 DRUG STORE PURCHASES

83-1-2

If Exchange Rate is
\$1 US = \$1.3 Can.

TABLE 1 (CONTINUED)**COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
INDOMETHACIN	7778
METHYLDOPA	11484
METHYLDOPA/HYDROCHLOROTHIAZIDE	2209
NAPROXEN	16625
OXAZEPAM	15855
PERPHENAZINE	2799
PROPRANOLOL HCL	23000
RIFAMPIN	90
THIORIDAZINE HCL*	3930
TRIAMCINOLONE ACETONIDE*	-265
TRIAMCINOLONE ACETONIDE /NEOMYCIN SULFATE /GRAMICIDIN D /NYSTATIN*	700

1983 DRUG STORE PURCHASES

83-1-3

If Exchange Rate is
\$1 US = \$1.3 Can.

TABLE 1 (CONCLUDED)**COST DIFFERENCES ON MULTIPLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
TRIAMTERENE/HYDROCHLOROTHIAZIDE	16200
TRIMETHOPRIM/SULFAMETHOXAZOLE*	8400

TOTAL DIFFERENCE	263939	65658(2)	198281(3)
TOTAL CANADIAN SALES	200099	55564	144535
COST DIFFERENCE AS % OF CANADIAN SALES	132%	118%	137%
NUMBER OF DRUGS	32	15	17

* Drug with generic competition in the US.

1. The Table displays the difference between actual Canadian Sales value and actual U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.
2. Aggregate of cost differences for drugs with generic competition in U.S.A.
3. Aggregate of cost differences for drugs with no generic competition in U.S.A.

1983 DRUG STORE PURCHASES

83-2-1

If Exchange Rate is
\$1 US = \$1.3 Can.

TABLE 2

COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
ACYCLOVIR	-131
ALPRAZOLAM	619
AMILORIDE HCL/HYDROCHLOROTHIAZIDE	1164
AMOXAPINE	440
BACLOFEN	-70
BROMOCRIPTINE MESYLATE	575
CAPTOPRIL	0
CEFACLOR	1000
CHOLESTYRAMIN RESIN	524
CLONAZEPAM	90
CLONIDINE HCL	850
CLOTRIMAZOLE	590
CYCLOBENZAPRINE HCL	377
DANAZOL	491
DANTROLENE SODIUM	67
DIFLUSINAL	464
DILTIAZEM HCL	67
DIPHENOXYLATE HCL*	113
DOXEPIN HCL	88

1983 DRUG STORE PURCHASES

83-2-2

If Exchange Rate is
\$1 US = \$1.3 Can.

TABLE 2 (CONTINUED)COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
DOXYLAMINE SUCCINATE/PYRIDOXINE HCL*	533
ETIDRONATE DISODIUM	-68
FENOPROFEN CALCIUM	616
HYDRALAZINE HCL*	-195
ISOTRETINOINE	-287
ISOXSUPRINE HCL*	-234
LEVODOPA/CARBIDOPA	130
LOPERAMIDE HCL	-59
LORAZEPAM	14621
MAPROTILINE HCL	410
MAZINDOL	-228
METHYPRYLONE	1289
METOCLOPRAMIDE HCL	3722
METOLAZONE	203
METOPROLOL TARTRATE	6616
MINOCYCLINE HCL	2811
MINOXIDIL	78
NADOLOL	2089
NIFEDIPINE	-3114

1983 DRUG STORE PURCHASES

83-2-3

If Exchange Rate is
\$1 US = \$1.3 Can.

TABLE 2 (CONTINUED)COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
OXYBUTYNIN CL	9
PINDOLOL	-1170
PIROXICAM	9390
PRAZOSIN HCL	1160
RANITIDINE HCL	1097
SALBUTAMOL	6800
SUCRALFATE	433
SULINDAC	2330
TAMOXIFEN CITRATE	-837
TEMAZEPAM	326
TERBUTALINE SULFATE	214
TIMOLOL MALEATE	1579
TIMOLOL MALEATE/ HYDROCHLOROTHIAZIDE	8
TOLMETIN SODIUM	651
TRAZODONE HCL	0
TRIAZOLAM	6300
VALPROIC ACID	125

1983 DRUG STORE PURCHASES

83-2-4

If Exchange Rate is
\$1 US = \$1.3 Can.

TABLE 2 (CONCLUDED)**COST DIFFERENCES ON SINGLE SOURCE DRUGS IN CANADA(1)**

Generic Drug Name	Using Actual U.S. Selling Prices (\$000 Can.)
VERAPAMIL HCL	-980
ZOMEPIRAC SODIUM	441

TOTAL DIFFERENCE	64127	217(2)	63910(3)
TOTAL CANADIAN SALES	253843	9558	244285
COST DIFFERENCE AS % OF CANADIAN SALES	25%	2%	26%
NUMBER OF DRUGS	57	4	53

* Drug with generic competition in the U.S.

1. The Table displays the difference between actual Canadian sales value and actual U.S. price value of Canadian sales on each drug. A negative magnitude means that the drug is sold at a lower price in U.S.A.
2. Aggregate of cost differences for drugs with generic competition in U.S.A.
3. Aggregate of cost differences for drugs with no generic competition in U.S.A.